IEEE

UNITED STATES ACTIVITIES

Promoting Career and Technology Policy Interests of Electrical, Electronics & Computer Engineers

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November 9, 1993

William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street NW
Washington, DC 20554

Dear Secretary Caton:

I am writing in response to the Federal Communications Commission's (FCC) request for comments on its proposal to amend and update the guidelines and methods it uses for evaluating the environmental effects of radiofrequency radiation, ET Docket No. 93-62. We are pleased to respond to your request.

Enclosed please find an original and nine copies of the statement prepared by IEEE-USA's Committee on Man and Radiation, a committee composed of electrical and electronics engineers with expertise and interest in the biological effects of electromagnetic radiation.

Thank you for allowing us the opportunity to respond to your request. The IEEE-USA promotes the career and technology policy interests of the 240,000 electrical, electronics and computer engineers who comprise the U.S. membership of IEEE.

Sincerely,

Charles K. Alexander, Ph.D., P.E.
Vice President, Professional Activities
and
Chairman, United States Activities Board

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the matter of	)	
	)	
Guidelines for Evaluating	)	
the Environmental Effects	)	**ET Docket No. 93-62**
of Radiofrequency Radiation	)	

COMMENTS OF THE IEEE-UNITED STATES ACTIVITIES COMMITTEE ON MAN AND RADIATION

1. The Committee on Man and Radiation (COMAR) of the Institute of Electrical and Electronics Engineers (IEEE), under the activities of the United States Activities Board (USAB), submits these comments in the referenced matter. "COMAR has as its primary area of interest the biological effects of non-ionizing electromagnetic radiation, examining and interpreting the biological effects, and presenting its findings in an authoritative manner." [1]

2. COMAR commends the FCC for proposing to update its guidelines with respect to the environmental effects of radiofrequency radiation by incorporating the principles embodied in ANSI/IEEE C95.1-1992. This standard reflects a broad consensus of the scientific and engineering communities regarding maximum permissible exposures (MPEs) that will help to assure safe work places and living environments. That consensus is based on a large number of scientific papers published since the ANSI 1982 standard.

3. It should be recognized that there exists no credible evidence of harm to human beings resulting from exposure at levels specified in ANSI C95.1-1982. The 1992 standard is, to a considerable extent, consistent with the 1982 standard. The new standard, however, introduces two tiers in which a higher safety factor is applied to the safety limits for exposure in an "uncontrolled environment" of individuals "who have no knowledge or control of their exposure." While some have argued that justification for two tiers is that "certain subgroups of the population are more at risk than others," the new standard rejects this thesis. The two-tier feature is not present at the low and the high ends of the spectrum covered by C95.1-1992.

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[1]Committee Charter, IEEE-United States Activities Committee on Man and Radiation approved by the IEEE-United States Activities Board, February 26, 1993.

4. The standard introduces, for the first time, limitations on pulsed exposure and induced and contact currents. Similar two-tier applications of different safety factors are applied in specifying limits on pulsed exposure and induced contact currents for "controlled" and "uncontrolled" environments.

5. ANSI/IEEE C95.1-1992 is a general exposure standard not specific to any particular industry or use of radiofrequency energy either deliberately radiated or incidental to some process. (exclusive of medical applications). Consequently, application of the standard may require specialized interpretations most appropriate for showing compliance in particular situations. A specific instance would be compliance with the induced current restriction. Clearly there exists a level of electromagnetic field exposure below which it is not possible to exceed the induced current limits. [2]

6. The ANSI/IEEE standard must be considered a "living document'" because it is continuously under review. In the recently held June meeting of Subcommittee IV of the IEEE Standards Coordinating Committee 28, (the committee charged with development and review of the standard), clarification and revisions of the standard were discussed. Clarifications may be published on an accelerated timetable, whereas revisions will require the full approval process, including review by the IEEE Standards Board. The Commission is urged to recognize the ongoing process of standard setting. That process includes clarification of the intent of the present standard and revision in light of the best available evidence of the biological effects of exposure to non-ionizing electromagnetic radiation. COMAR suggests that the Commission processes should be designed to take into account, without the delay of a formal rule making,any clarifications of the present standard that may be adopted formally. Such clarifications will not change the basic premises of the standard, but will better reflect the intent of the drafting body (where use of the standard has demonstrated the need for such interpretation).

7. An example of a needed clarification is the specification that measurements are not to be made closer than 20 centimeters from any object. In many instances, however, partial body exposure of the user is within 20 centimeters of the source. Subcommittee IV is attempting to clarify the intent of the standard with respect to such exposure. Another question under consideration is whether all such exposures require determination of specific absorption rates (SAR) in tissue.

8. Another example of a needed clarification is in the exclusion clause regarding the specification of spatial peak SAR in one gram of tissue. The shape of that one gram of tissue is important and will be better defined in the near future. When such clarification are adopted, the Commission should be prepared to recognize them and incorporate such clarification into its own process.

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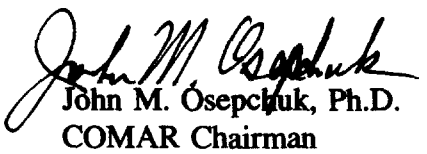
[2]O.P. Gandhi et al., "Likelihood of High Rates of Energy Deposition in the Human Legs at the ANSI Recommended 3-30 MHz RF Safety Levels," IEEE Proceedings, Vol. 73, No. 6, pp. 1145-1147, June 1985.

9. COMAR also recommends the Commission on its ancillary objective to educate the public, e.g. by means of OET Bulletin No. 56. COMAR expresses its willingness to help the Commission in future endeavors toward achieving this objective.

10. In summary, COMAR supports the Commission's proposal to update its processes for determining the possible impact of Commission actions on the environment, and urges the Commission to recognize the ongoing process of standards development.



John M. Osepchuk, Ph.D.
COMAR Chairman